AMPHITHEATRE BRIDGE
Acadia National Park Roads & Bridges
Spanning Little Harbor Brook on Amphitheatre Road
Seal Harbor Vicinity
Hancock County
Maine

HAER NO. ME-41

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

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HISTORIC AMERICAN ENGINEERING RECORD

AMPHITHEATRE BRIDGE

HAER No. ME-41

LOCATION: Spanning Little Harbor Brook on Amphitheatre section of Sargent Mountain Carriage Road, 1 mile west of Jordan Pond House, Acadia National Park, Seal Harbor vicinity, Hancock County, Maine.

Quad: Southwest Harbor, Maine
UTM: 19/558175/4907875

DATE OF CONSTRUCTION: 1932

ARCHITECT: Charles W. Stoughton

ENGINEER: Paul D. Simpson

CONTRACTOR: John D. Rockefeller, Jr. work crews under S. F. Ralston, estate superintendent

FHwA STRUCTURE NO.: 1700-016S

ORIGINAL OWNER: John D. Rockefeller, Jr.

PRESENT OWNER: Acadia National Park, National Park Service

SIGNIFICANCE: The largest bridge on the Rockefeller carriage road system, Amphitheatre Bridge carries the Amphitheatre section of the Sargent Mountain road over Little Harbor Brook in one of Acadia National Park's most scenic sections. The structure is significant for the attention devoted to landscape concerns during its planning and construction.

PROJECT INFORMATION: Documentation of Amphitheatre Bridge is part of the Acadia National Park Roads and Bridges Recording Project, conducted in 1994-95 by the Historic American Engineering Record. HAER No. ME-13, ROCKEFELLER CARRIAGE ROADS, contains an overview history of the carriage road system.

Richard H. Quin, HAER Historian, 1996

HISTORY

One of the principal elements of John D. Rockefeller, Jr.'s carriage road system on Maine's Mount Desert Island was a 13-mile loop encircling Sargent, Penobscot and Cedar Swamp mountains. Construction of the road began in the early 1920s, but Rockefeller suspended work on the southern segment when a group of summer residents in the Northeast Harbor area raised objections that the road would adversely affect the wild landscape of the Amphitheatre, a wild valley between Penobscot and Cedar Swamp mountains. The project was suspended until the early 1930s, when Rockefeller, convinced that objections to the project had been largely quelled, ordered a resumption of the work.

The road would entail the construction of three major bridges, the largest of which would cross Little Harbor Brook in the Amphitheatre itself. Rockefeller and his carriage road engineer, Paul D. Simpson, chose a site adjacent to a small waterfall for scenic interest. To reach the site, the road would climb around the edge of the Amphitheatre to reach the crossing, a contrast to usual practice by which roads descend to stream crossings.

Rockefeller engaged New York architect Charles W. Stoughton to design the bridge. Stoughton was simultaneously working on the design for bridges for the carriage roads at the Rockefeller family estate in Pocantico Hills, New York, and Rockefeller was familiar with his work. Stoughton and his design engineer, Charles Russell Atherton, produced seven sheets of construction drawings in 1930.[1] In October, Stoughton presented his drawings at a meeting of the national Commission of Fine Arts, which reviewed designs for major federal projects, at a special meeting of the Commission in New York. Stoughton stated that he had designed all but four or five of the small bridges in Central Park, which impressed the board, but they recommended that

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[1]Charles W. Stoughton and Charles Russell Atherton, New York, "Amphitheatre Bridge over Little Harbor Brook, Mount Desert Estate of Mr. John D. Rockefeller, Jr.", construction drawings, 7 sheets, 1930. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group II, Homes (Seal Harbor), Box 123 Folder 1241, Map #78.

buttresses in the original design be deleted, to which Stoughton agreed.[2]

Stoughton's design was for a large stone-faced reinforced concrete bridge arranged around a wide semicircular arch. The structure would be curved to follow the terrain and present the best vista of the adjacent waterfall. The design featured a peaked parapet wall pierced by rectangular openings, projecting stones breaking the monotony of the large masonry wall, and a "turret" or projecting platform from which to view the bridge and stream. At 245', it would be the largest bridge on the carriage road system.

Because the bridge would be located on land in Acadia National Park, Rockefeller had to seek approval for the project from the National Park Service. NPS Associate Director Arno B. Cammerer chose to submit the revised design for Amphitheatre Bridge, along with a portfolio of other bridge plans developed by Park Service architects, to the Commission of Fine Arts for formal approval.[3]

The Commission took up the matter at its 5 January 1931 meeting in Washington. Cammerer and NPS landscape architect John B. Wosky submitted the designs to the board for review. The Commission called the revised design "an improvement" and approved it, though they recommended that a number of apertures in the parapet wall beneath the coping be omitted.[4]

Cammerer notified Rockefeller two days later that the bridge design had been approved by the Commission. Cammerer noted the board had been pleased with the design, but suggested the omission of the open spaces in the parapet wall. The objection was that the open areas might make the parapet appear somewhat weak in contrast to the massive masonry of the structure.

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[2]Commission of Fine Arts, minutes of 2 October 1930 meeting; Charles, Chairman, Commission of Fine Arts, to Arno B. Cammerer, Associate Director, National Park Service, 4 October 1930, attached. Washington, D.C., Commission of Fine Arts.

[3]Cammerer to John D. Rockefeller, Jr., New York, 18 December 1930. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group II, Homes (Seal Harbor), Box 123 Folder 1241.

[4]Commission of Fine Arts, minutes of 5 January 1931 meeting.

However, he left the decision on the suggested change up to Rockefeller. Cammerer signed the drawings, indicating National Park Service acceptance of the design.[5]

Rockefeller replied on 13 January, arguing that while he could understand the aesthetic reasons for omitting the open spaces beneath the parapet coping, they would be desirable on this bridge in order to allow one crossing the bridge to more easily look down and view the stream. He pointed out that he had adopted this practice for bridges on his family's Pocantico Hills system and for the Eagle Lake Bridge [HAER No. ME-55], and both results proved satisfactory. Unless Cammerer specifically objected, Rockefeller stated the bridge would be built as designed.[6]

Rockefeller's engineer, Paul Simpson, was responsible for the site planning and spent considerable time working out the precise location for the bridge. Landscape concerns factored heavily into his considerations, as Rockefeller always wanted his road projects to show off the island's scenery at its best while limiting damage to the landscape as much as possible. On 19 January 1931, he wrote Rockefeller, stating that he was concerned about saving two important trees at the bridge site, a 20" hemlock and a 20" pine. If the bridge were to be constructed to the 16' width used on the other carriage road bridges, both trees could easily be saved. However, if the bridge were built to a 20' width, as recommended by Stoughton, the 20" pine below the bridge might have to be cut. Simpson accordingly prepared a revised location plan in order to save the pine. The new plan allowed the road to cross on a longer radius curve, which was preferable, but would have to cross the stream at a more oblique angle and on a steeper grade, requiring a longer span. While it would be desirable to have the road cross the stream where the waterfall would be on an axis with the arch, construction would be difficult. Simpson's revised plan had the structure cross on a wider opening, allowing for good views of the waterfall from

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[5]Cammerer to Rockefeller, 7 January 1931. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group II, Homes (Seal Harbor), Box 123 Folder 1241.

[6]John D. Rockefeller, Jr., New York, to Cammerer, 13 January 1931. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group II, Homes (Seal Harbor), Box 123 Folder 1241.

both directions of travel. If the arch could be built on a skew, the waterfall's visibility would be enhanced even more.[7]

On the other hand, if the 20' pine were sacrificed, the stream could be crossed at a right angle and a shorter span could be employed. Simpson asked if the bridge could be constructed to a narrower width, and forwarded a copy of the revised location plan for his use in preparing the final design for the bridge.[8]

Rockefeller wrote back, stating that Stoughton favored the wider bridge on account of its curvature, which would make it more difficult for carriages to pass. Rockefeller accepted the argument, indicating that if the bridge were to be a straight structure, there would be no reason to increase its width from 16'. However, he thought it was "important to save the trees if we can." It was also important to site the bridge so that it framed the view of the waterfall, and for the structure to be wide enough "for comfortable use." As the matter would have to be studied on the ground, Simpson was asked to wait until Stoughton could inspect the site in early March. Rockefeller added that the detailed plans for the structure had been drawn, but stated that they could be revised if the relocation was determined necessary.[9]

Construction got underway in late spring. The work was carried out by Rockefeller's own construction forces under the supervision of his Seal Harbor estate superintendent, S. F. Ralston. Most of the early bridges had been built by Byron and Sam Candage, Seal Harbor contractors, but continued cost overruns led Rockefeller to develop his own construction crews, and they were assigned the Amphitheatre Bridge project. Unfortunately, no material could be located in the park or Rockefeller archives detailing the actual construction.

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[7]Paul D. Simpson, Seal Harbor, ME to Rockefeller, 19 January 1931. Rockefeller Archives Center, Record Group IV3A10, Simpson Family Papers, Box 1, Folder 4.

[8]Ibid.

[9]Rockefeller to Simpson, 31 January 1931. Rockefeller Archives Center, Record Group IV3A10, Simpson Family Papers, Box 1 Folder 4.

In November, John D. Rockefeller, III, who monitored the road construction during his father's frequent absences, wrote Bar Harbor attorney A. H. Lyman, who chaired a rump "road committee" created by Rockefeller to oversee the work, that he was sending another $6,000 for use on the bridge project, part of a $30,000 sum already authorized. He told Lyman he would discuss additional payments with Ralston as necessary.[10] The bridge was apparently completed soon afterwards, as the date "1931" appears on the date stone.

In September 1932, Rockefeller wrote Stoughton in regard to the placement of dates on various bridges. For the Amphitheatre Bridge, Rockefeller selected a location on the inner side of the parapet coping on the north or upstream side of the bridge, using the central, peaked coping stone for a prominent display. He indicated that mason Harry Somes would be able to carve the date stone from the figures Stoughton had provided.[11]

The bridge has remained in continuous use, and is one of the more popular attractions of the "Around the Mountain" carriage road loop. Visitors traveling the road often stop to enjoy the view of the waterfall, just as Rockefeller had intended, or to appreciate the most imposing structure on the carriage road system. The bridge is also seen by users of the Little Harbor Brook trail, which passes underneath the bridge on its climb from Little Harbor to the top of Sargent Mountain.

A 1993 inspection by Vanasse Hangen Brustlin, Inc., a Boston engineering firm, noted a number of matters of concern, including extensive mortar joint deterioration; calcium carbonate deposition on the arch intrados, spandrel walls and wing walls; uphill drainage against the parapet walls; and erosion of the base of the southern parapet wall. Vegetation was also noted on the roadway inside the parapets, and Portland cement had been used inappropriately to repoint the arch intrados. The study recommended remedial measures including waterproofing the roadway

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[10]John D. Rockefeller, III, New York, to A. H. Lyman, Bar Harbor, ME, 17 November 1931. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group II, Homes (Seal Harbor), Box 74 Folder 764.

[11]Rockefeller to Stoughton, 3 September 1932. Rockefeller Archives Center, Office of the Messrs. Rockefeller, Record Group II, Homes (Seal Harbor), Box 123 Folder 1243.

to drain off the structure, minor repointing as required, removal of the calcium carbonate efflorescence, and special treatments to deal with the erosion.[12]

DESCRIPTION

The largest structure on the Rockefeller carriage road system, Amphitheatre Bridge is a reinforced concrete filled spandrel arch bridge faced in the island's native granite. The structure, which spans Little Harbor Brook, curves around the head of the Amphitheatre, a particularly scenic bowl-shaped valley between Cedar Swamp and Penobscot mountains. The bridge is located adjacent to a small waterfall and crosses the Little Harbor Brook trail, an infrequently used foot trail, one of several which climb to the summit of Sargent Mountain, the second highest peak on Mount Desert Island.

The bridge, if built on a tangent, would be 245' in length, but it curves gracefully to follow the terrain. It is arranged around a wide semicircular arch with a clear span of 32' and a height of 16'. The arch is defined by arch radiating voussoirs or ring stones of varied size, generally larger near the spring line. The bridge itself is of reinforced concrete construction, faced in the random ashlar granite. To either side of the arch are projecting stones which help break the monotony of the wide stone walls. Because the bridge crosses a foot trail as well as the stream, the intrados or underside of the arch is likewise clad in stone. Peaked stone parapet walls flank the 20' wide roadway, and are pierced at irregular intervals by rectangular openings, which relieve the mass of the walls and allow for views from the bridge down to the stream. A projecting viewing platform is located at the east end of the parapet wall.[13]

The bridge location had been altered somewhat by Paul Simpson in order to save two old trees, a hemlock and a pine.

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[12]Vanasse Hangen Brustlin, Inc. and McGinley, Hart & Associates, *Historic Bridge Reconnaissance Survey, Carriage Road System, Acadia National Park*, draft edition (Boston, MA: National Park Service, North Atlantic Regional Office, September 1993), 92, 94.

[13]The description is based in on the account in Vanasse Hangen Brustlin/McGinley Hart study, and on field observations in summer 1995.

Unfortunately, insufficient space was provided for the pine, which grew against the wall of the bridge and had to be removed several years ago. The hemlock near the center of the bridge survives but is in poor condition.

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